PHENIX

TECHNICAL SUPPORT 2014

PHENIX WEEKLY PLANNING

June 5, 2014

Don Lynch

PHENIX

This Week

TECHNICAL SUPPORT 2014

- Run 14 Continues
- No scheduled maintenance this week
- Next maintenance access day 6/11/14?
- Plan for 2014 Shutdown
- Tech Support for Run 14 as required
- Support for sPHENIX efforts as required

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TECHNICAL SUPPORT 2014

Next Week

- Run 14 Continues
- Next scheduled access Wednesday 6/11?
  - Tasks?
- Plan for 2014 Shutdown
- Tech Support for Run 14 as required
- Support for sPHENIX efforts as required

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2014 planned Technical Support & 2014 Shutdown

TECHNICAL SUPPORT 2014

Support for run 14	2/3-6/30/2014
Procure & Fabricate parts for MPC-Ex North and South	1/1/2014-6/30/2014
Assemble & test MPC-Ex South, ready for installation	3/1-7/1/2014
Set up Physics lab for FVTX/VTX east	6/15/2014
End of Run Party	6/27/2014?
MuID Efficiency Measurement (Itaru, requires cooling water & isobutane)	7/7/2014
Assemble & test MPC-Ex North, ready for installation	7/1-9/25/2014
Start of Shutdown Tasks (purge flammable gas, disassemble and stow shield wall, remove collars, move EC to AH, Move MMS south, etc.)	7/14 – 7/25/2014
Remove FVTX/VTX East to PHYSICS?, repair and reinstall	7/14 – 9/15/2014
Remove MMS east vertical lampshade	7/28-7/30/2014
Troubleshoot intermittent water leak in MMS	7/30- 8/8/2014
Other Maint. In MMS	TBD
Reinstall MMS east vertical lampshade	TBD
Summer Sunday prep AH, tours and restore AH	7/30-8/15/2014
Install scaffolding in Sta 1 South	7/28/2014
Remove MPC-Ex prototype, Install new MPC-Ex South	7/28-8/22/2014
MuTr Sta 1 South troubleshooting and repairs	7/28-8/22/2014
Maint. & Repairs for MPC South, BBC South, RPC1 South, MuTr sta 1 South, as necessary	7/28-8/22/2014
Remove scaffolding from sta 1 south, Move CM South	8/25/2014
Install scaffolding in Sta 1 North	8/26-8/29/2014
MuTr Sta 1 & Sta. North troubleshooting and repairs	8/29-10/17/2014
Prep MPC-Ex North installation area	9/1-9/26/2014
Install new MPC-Ex North	9/29-10/17/2014

2014 planned Technical Support & 2014 Shutdown (cont'd)

TECHNICAL SUPPORT 2014

Remove Sta 1 North scaffolds, Move CM North	10/20-10/24/2014
Other detector support	TBD
Infrastructure Maintenance and Improvement	TBD
Decommissioning of obsolete PHENIX detector equipment	TBD
sPHENIX Support	on-going
End of Shutdown Tasks (Move MS north, roll in EC , install collars, remove 10 ton cart, plates and manlifts, build shield wall, etc.) 10/27-11/26/2014	
Pink/White/Blue Sheets	1/17/2014
End of Shutdown Party	????
Start Flammable gas flow	????
Close shield wall, install radiation interlocks and prepare for run 14	12/31/2014
Start run 15	1/2/2015

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TECHNICAL SUPPORT 2014

Muon Tracker Shutdown Work List – summer 2014

- testing as MPC-EX installed, particularly before closing Sta-1's
- fix North Arcnet – N.2.7.1, North Sta-2 Oct-7 Chassis-1 (bad cable?)
- fix packets that were disabled for Run14
  - 11035,36 – South Sta-1 Quad-4 Chassis-3
  - 11267,68 – North Sta-2 Oct-7 Chassis-2
- replace boards for most frequent FEM problems from run
  - 11195 - North Sta-1 Quad-3 Chassis-3?
    - might have already done this; check history (changed RX 3/14/12)
  - 11064 – South Sta-2 Oct-3 Chassis-3 - unreachable
- N341 HV trip problem?
- auto-reboots of ArcNet and iocondev's for calibration?

- Access needed:
  - South & North Sta-1
  - Inside North Sta-2 on bottom
- Main Issue – Manpower

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TECHNICAL SUPPORT 2014

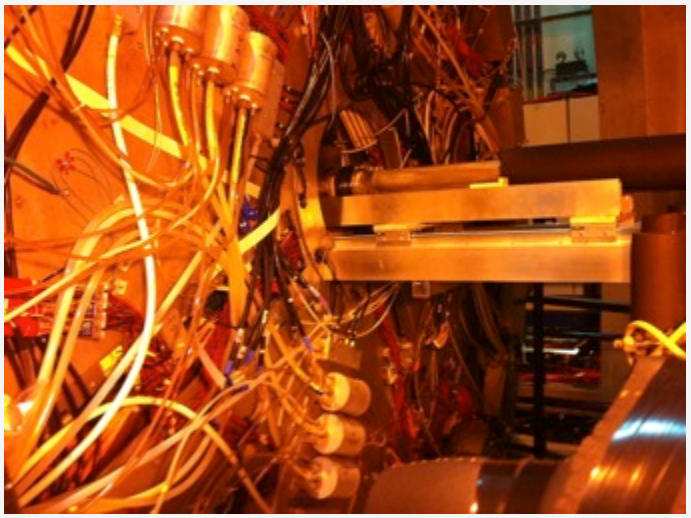
VTX/FVTX east repairs/ upgrades required

West to remain installed

Need to get PHYSICS FVTX/VTX lab ready by ~ mid June

TECHNICAL SUPPORT 2014

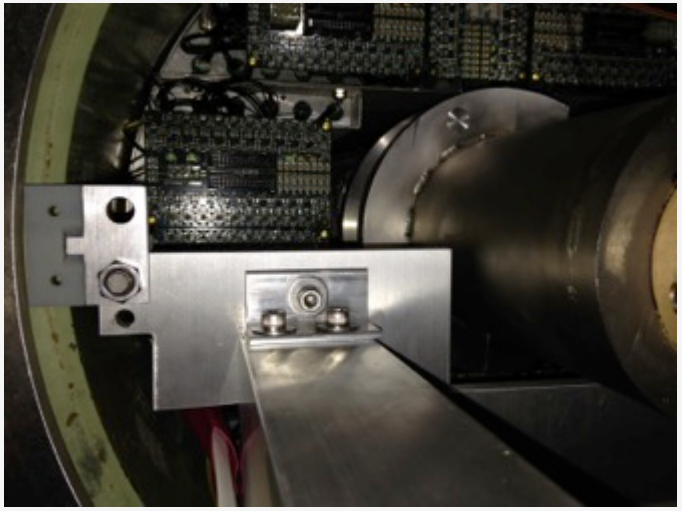
MPC-Ex N & S Final Installations This summer

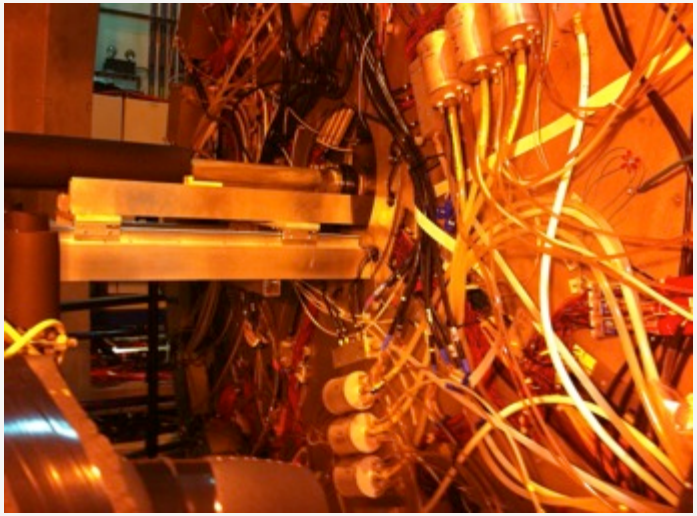


Working on North BP support design

Tungsten plates received, QC acceptable

Additional parts ordered from CS this week





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TECHNICAL SUPPORT 2014

From John LaJoie, MPC-Ex Schedule considerations

(1) Stony Brook in charge of MPC-EX testing

(2) Tom Hemmick is leading a test beam effort at SLAC June 20-30th: one MPC-EX hemisphere with 8 tungsten layers and 4X and 4Y carrier boards one micromodule on each layer, partial assembly to be returned to BNL by July 7.

(3) Current Parts Dispositions:

Sent to Stony Brook for tests:

- 8 (4 x and 4 y) carrier boards laminated to 'W' plates (new plates).
- 3 loose carrier boards for testing (one missing a connector)
- 50 brass spacer nuts
- 4 SS 1/4 - 20 x 4" studs
- 4 rapid prototyped spacers
- 1 micromodule

Mike Lenz office:

- 1 Assembly fixture
- 3 Delrin covers (in the shape of the 'W' plates)
- 6 'W' plates (new plates)
- 50 brass spacer nuts

At Central shops (due 6/27/14):

- 5 mounting tabs
- 50 brass spacer nuts
- 20 FEM mounting brackets
- 20 FEM mount Isolation Boards

Jim LaBounty's office:

- Installation assembly parts (to be itemized)

(Additional parts in currently installed partial South prototype to be itemized)

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TECHNICAL SUPPORT 2014

MPC-Ex Schedule considerations, Cont'd

Sensors

Sensor testing at Yonsei is proceeding well, and we should have the remaining 200+ sensors from Yonsei by the end of June. We already have almost all the sensors we need for the south MPC-EX.

Micromodules:

450 ROC's ordered:

100 received and used in building initial micromodules
100 in transit to BNL
250 rejected by Sierra (bad solder mask) and being remanufactured expect shipment in ~ 1 week

- After receipt at BNL, ROC's are inspected and sent to Quik Pak with SVX4 chips for wirebonding the chips to the ROC
- ROCs returned to BNL and inspected
- BNL wirebonds the sensors and assembles the micromodules
- Micromodules sent to Stony Brook for testing
- Micromodules returned to BNL for final assembly into MPC-Ex N & S

The electronics for the FEM is designed and at Sierra awaiting a BNL PO for manufacture and assembly. The FEMs have four readout inputs, so there will be eight FEMs per arm. two FEMs per box, four locations on the magnet for each arm.

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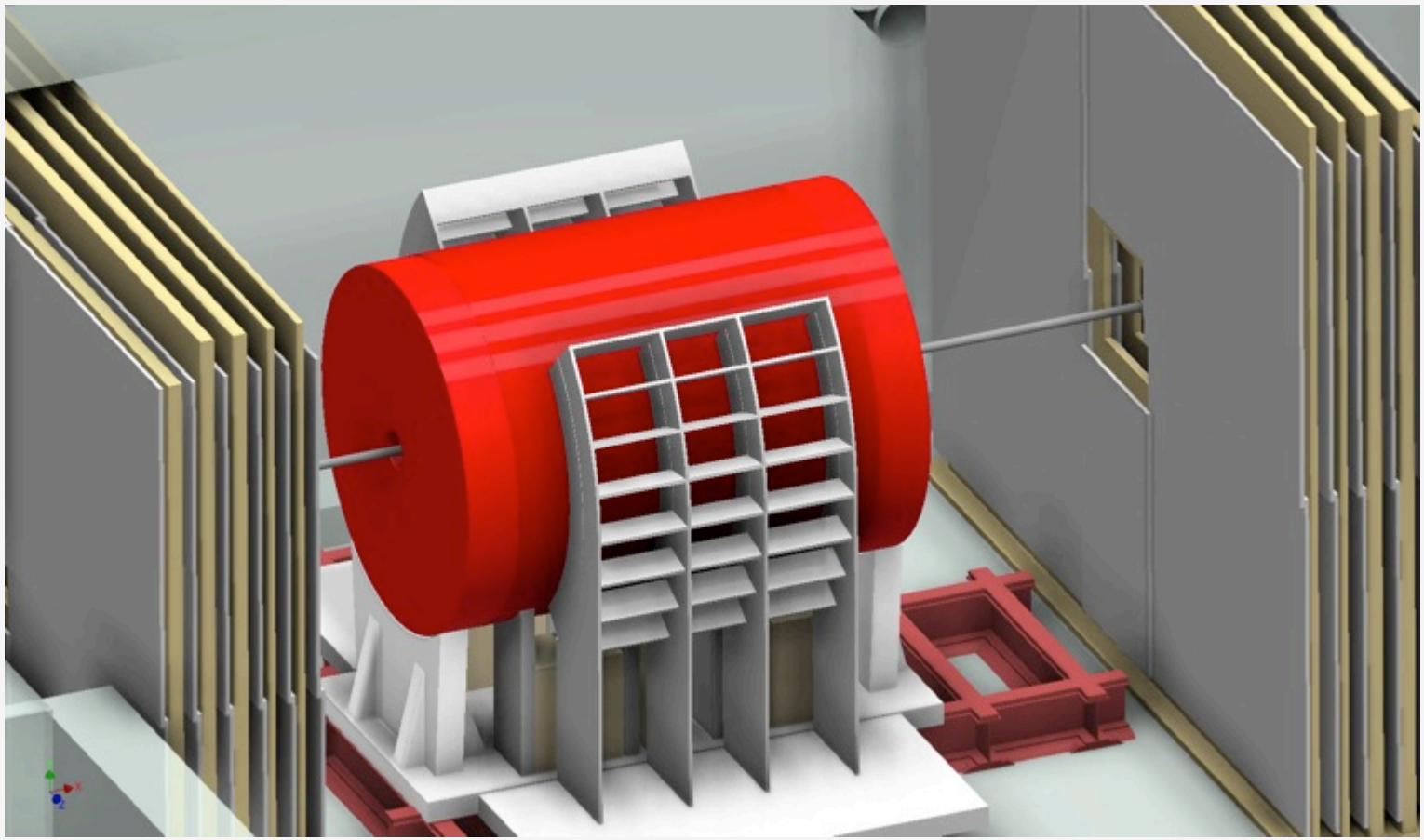
New sPHENIX Illustrations



May 29, 2014

sPHENIX Mechanical Design

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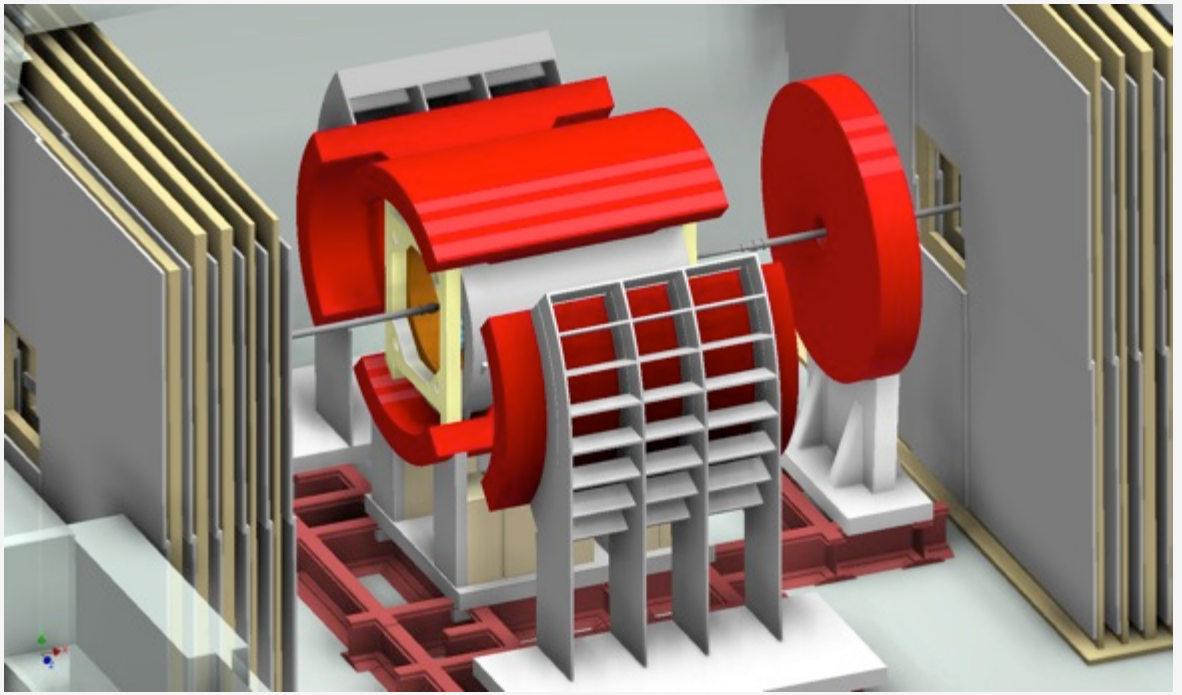
TECHNICAL SUPPORT 2014



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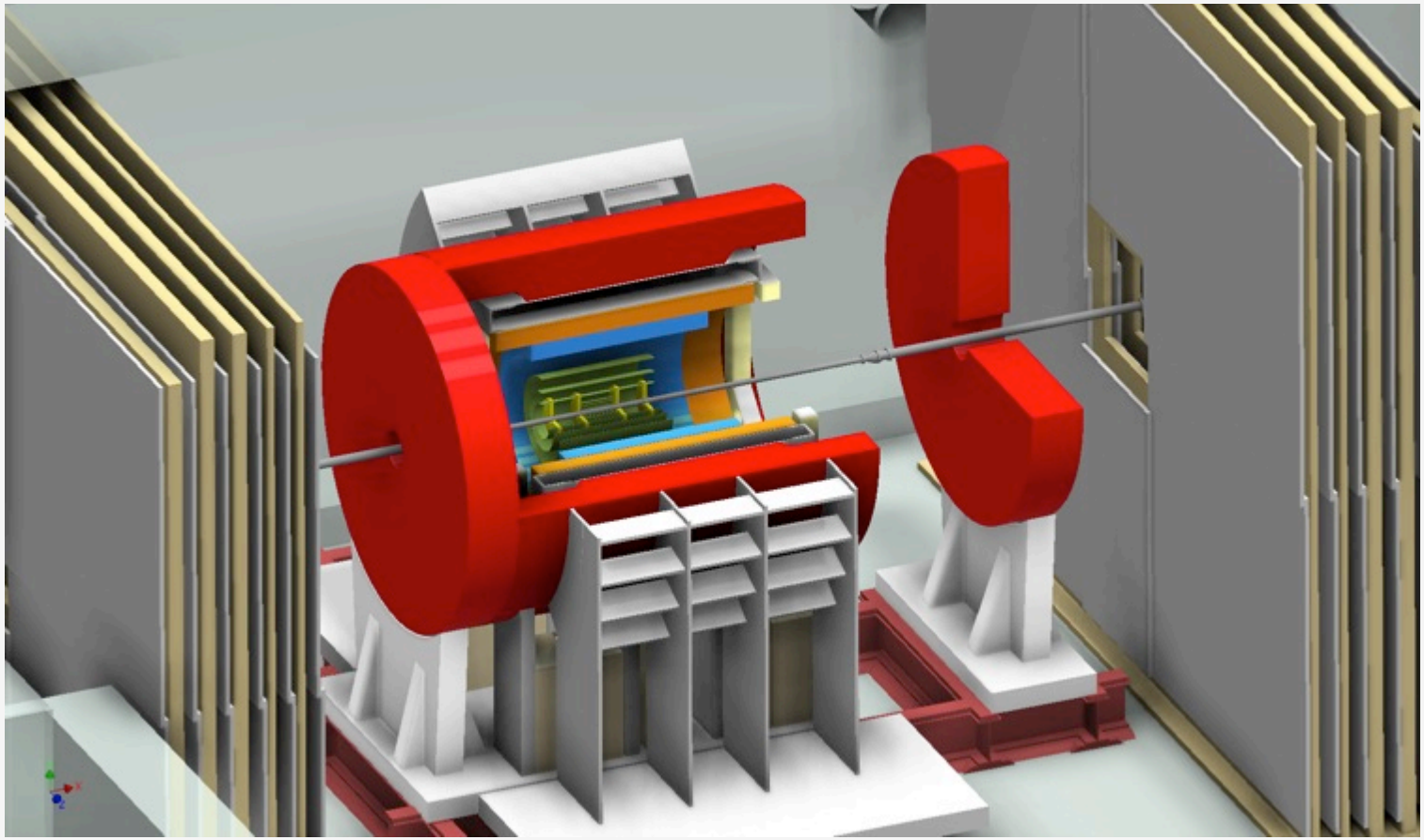
TECHNICAL SUPPORT 2014



June 5, 2014

sPHENIX Mechanical Design

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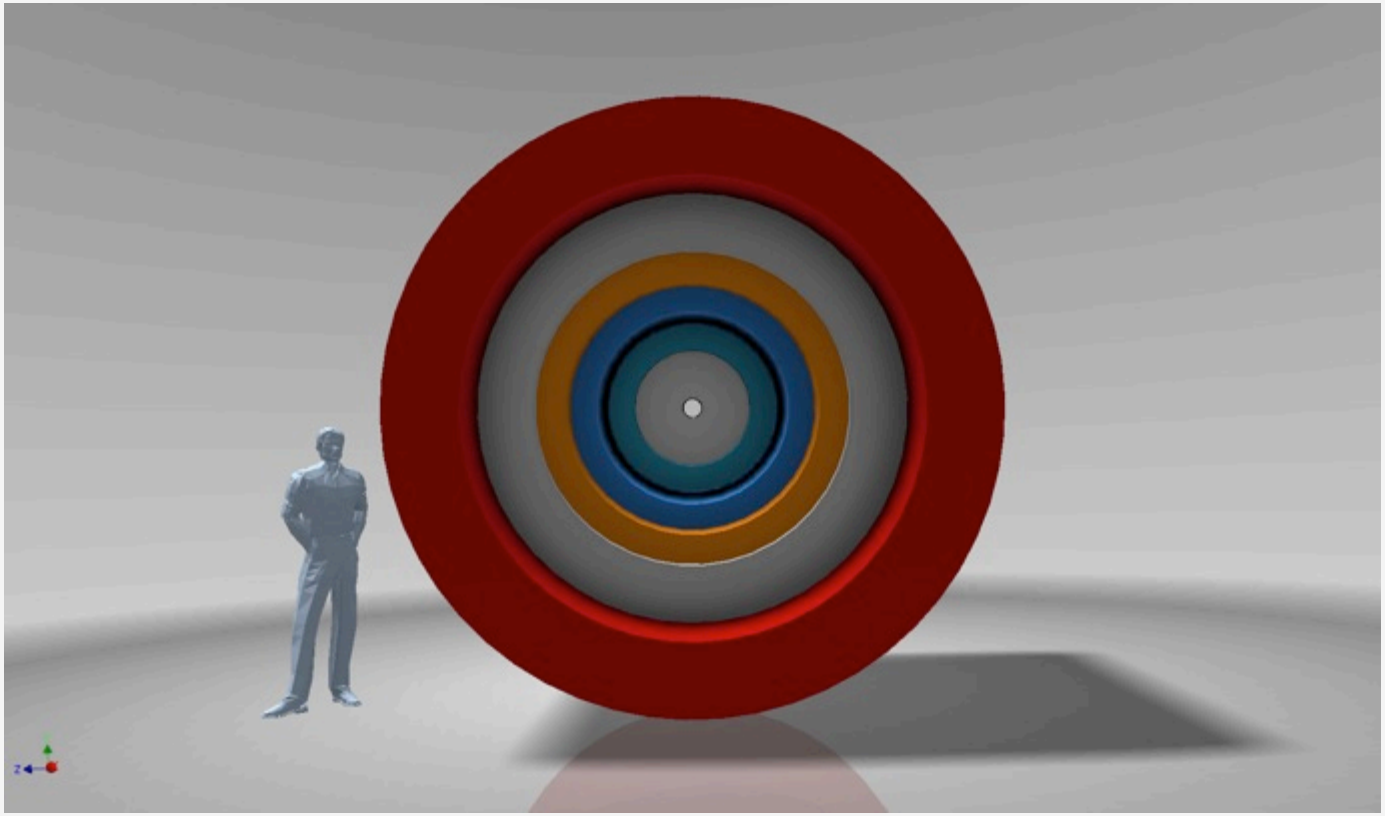
TECHNICAL SUPPORT 2014



May 29, 2014

sPHENIX Mechanical Design

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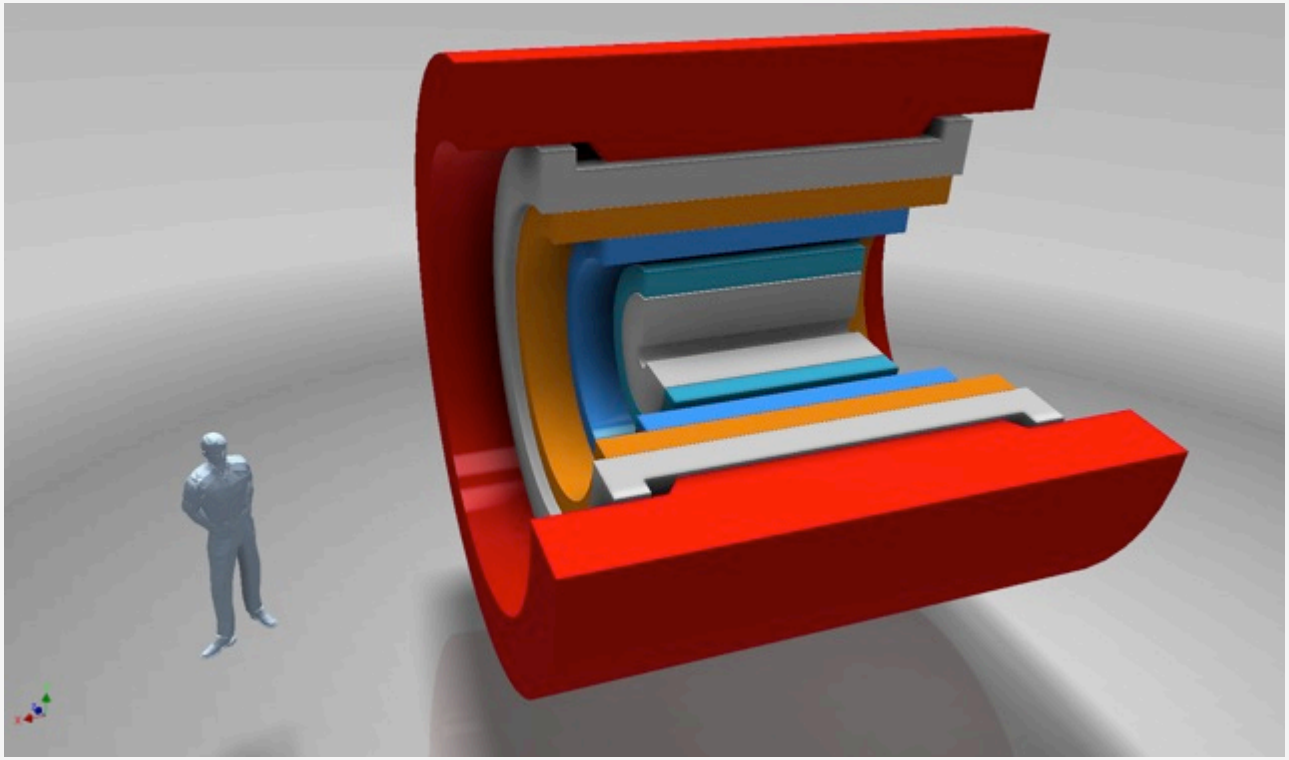
TECHNICAL SUPPORT 2014



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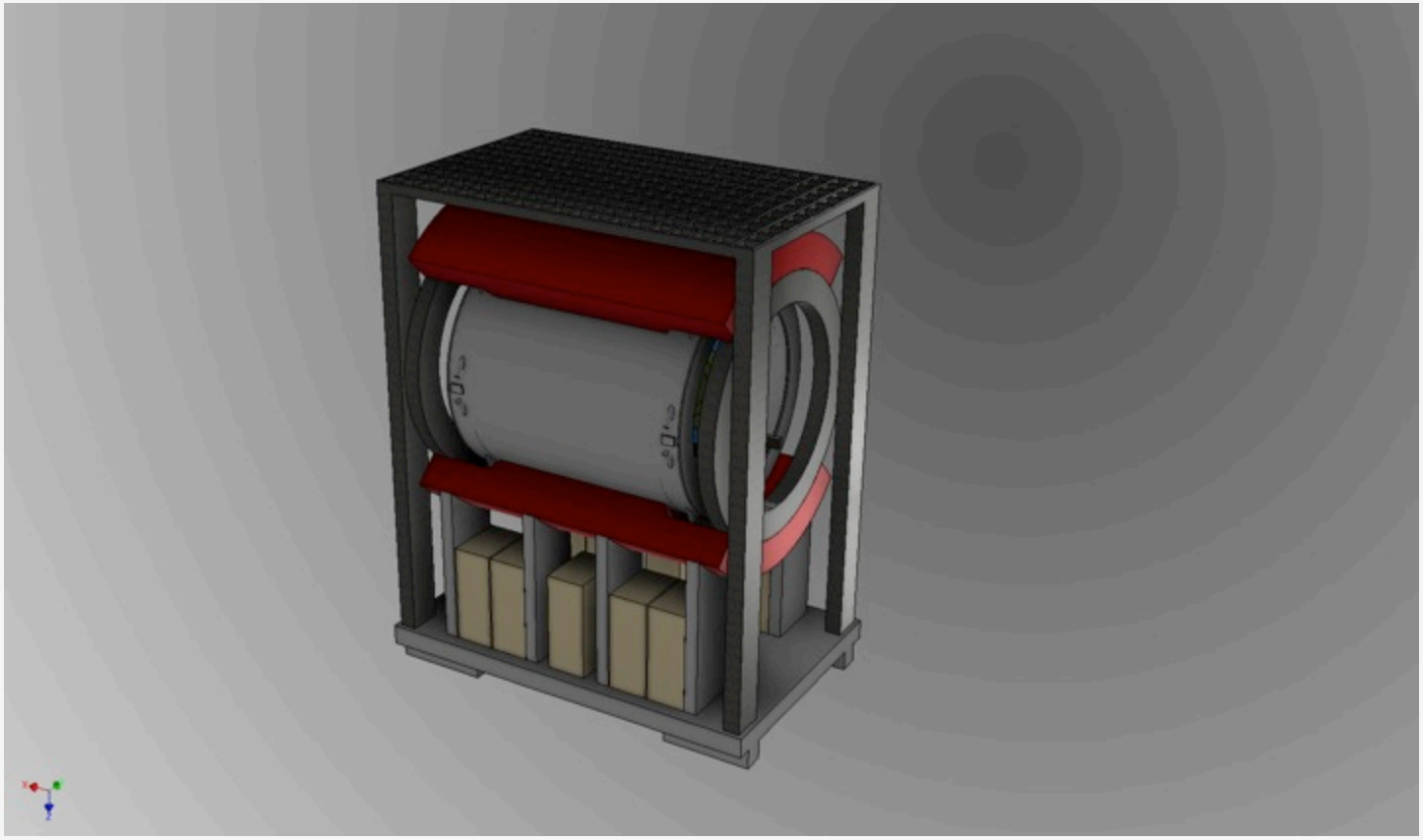
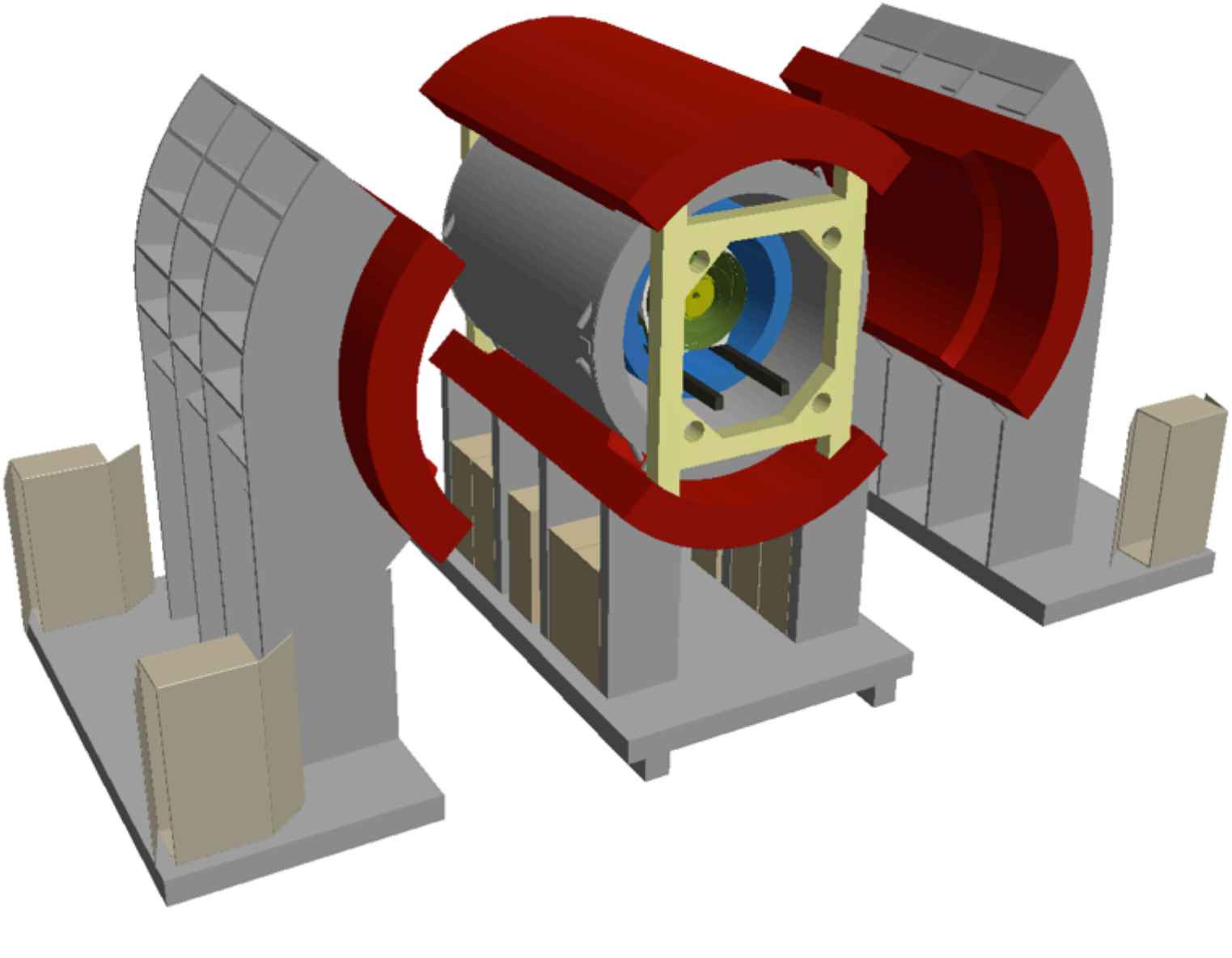
TECHNICAL SUPPORT 2014





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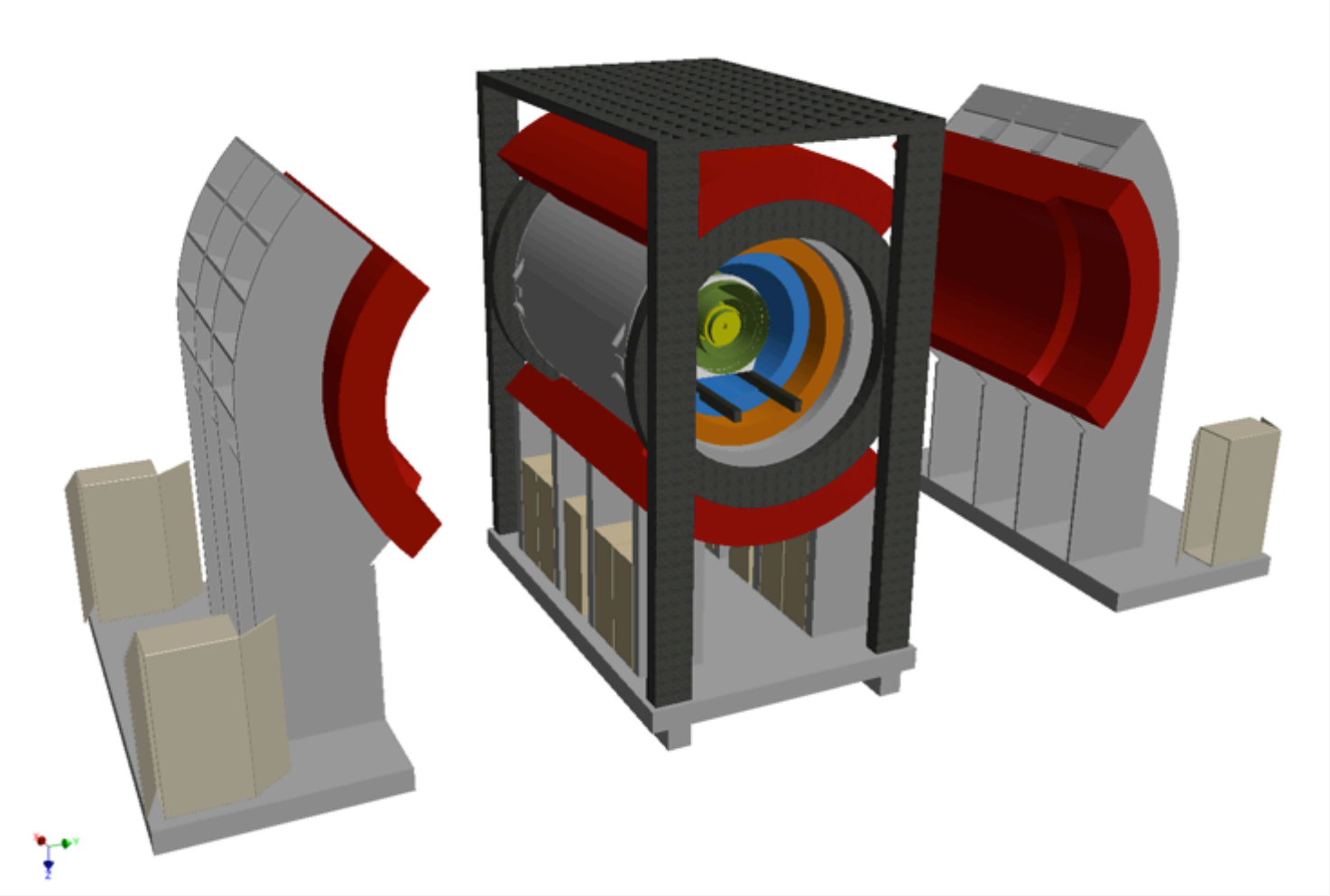
TECHNICAL SUPPORT 2014

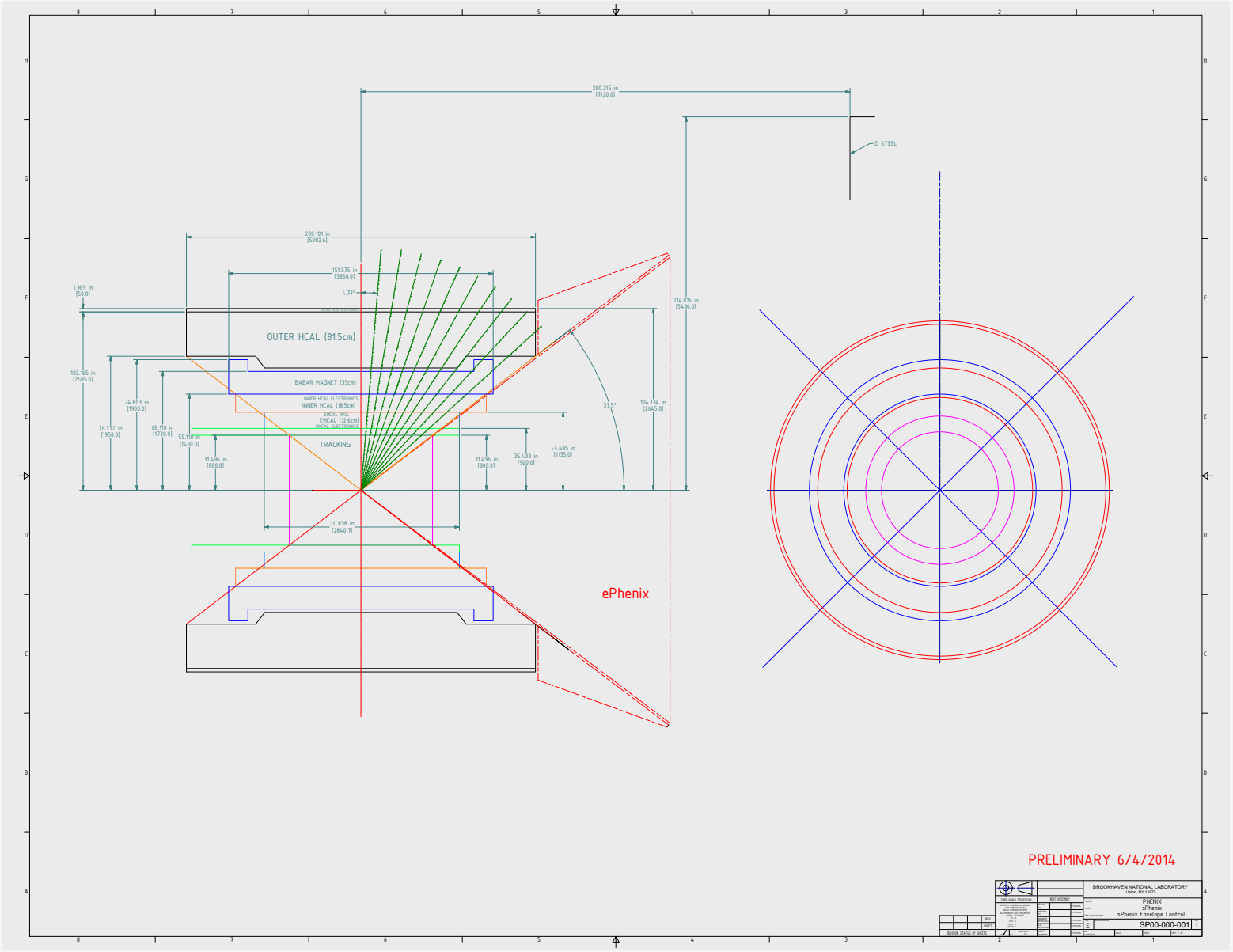


May 29, 2014

sPHENIX Mechanical Design

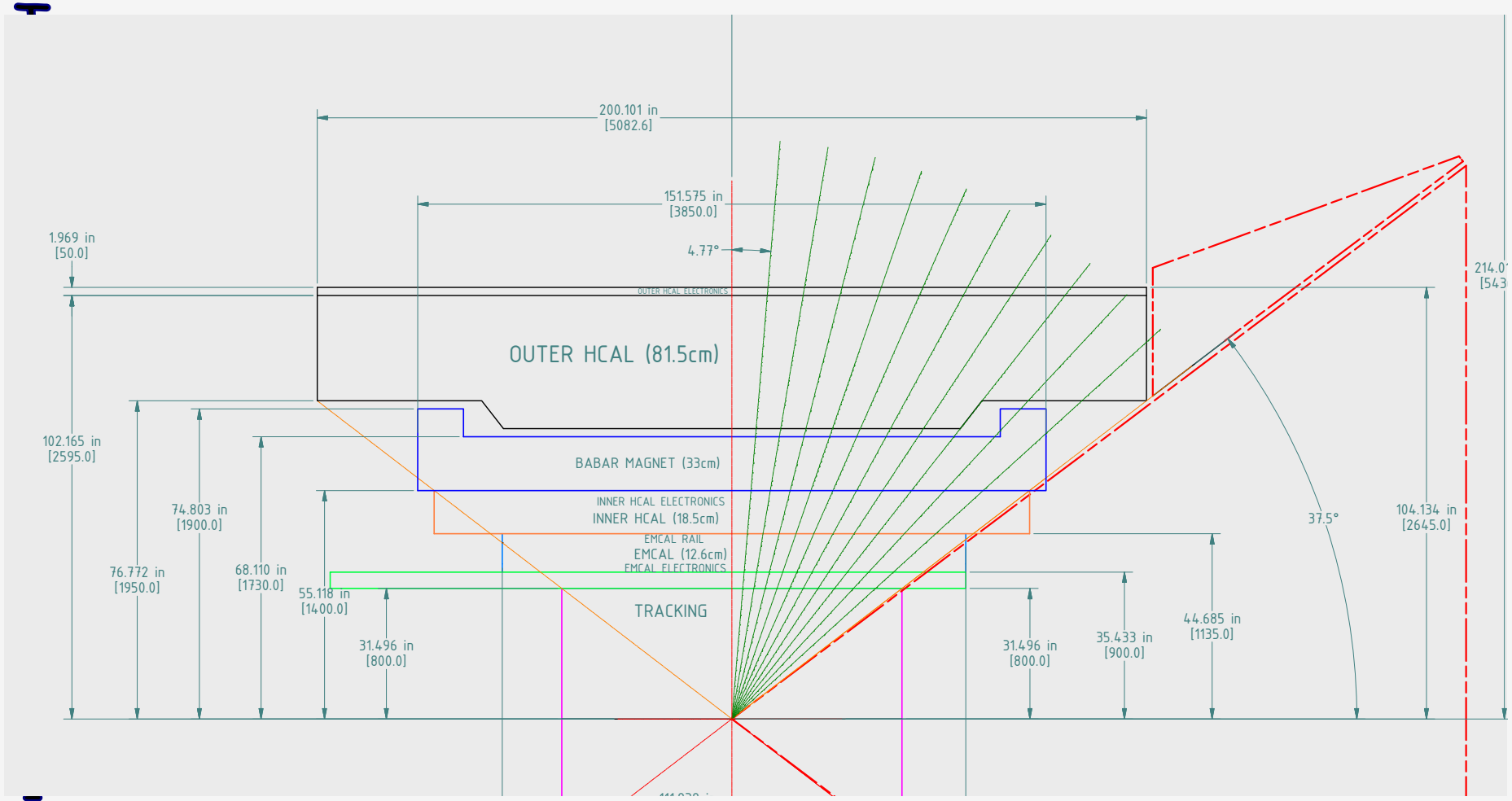
sPHENIX “Innie”/”Bothie”

TECHNICAL SUPPORT 2014

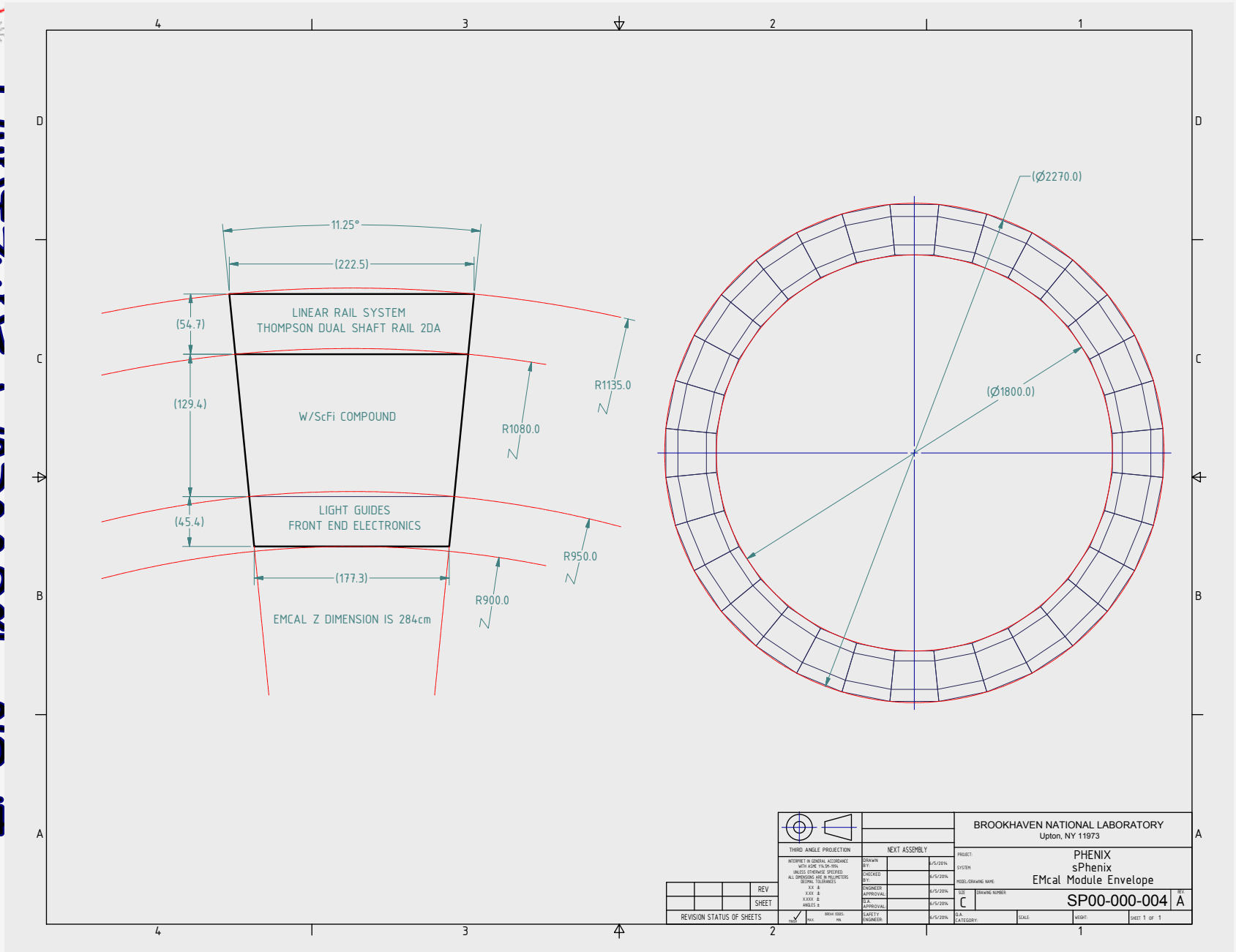


May 29, 2014

sPHENIX Mechanical Design


200.101 in
[5082.6]
151.575 in
[3850.0]
1.969 in
[50.0]
4.77°
OUTER HCAL ELECTRONICS
OUTER HCAL (81.5cm)
102.165 in
[2595.0]
BABAR MAGNET (33cm)
74.803 in
[1900.0]
INNER HCAL ELECTRONICS
INNER HCAL (18.5cm)
EMCAL RAIL
EMCAL (12.6cm)
EMCAL ELECTRONICS
76.772 in
[1950.0]
68.110 in
[1730.0]
55.118 in
[1400.0]
TRACKING
31.496 in
[800.0]
31.496 in
[800.0]
35.433 in
[900.0]
44.685 in
[1135.0]
37.5°
104.134 in
[2645.0]

TECHNICAL SUPPORT 2014



May 29, 2014

sPHENIX Mechanical Design

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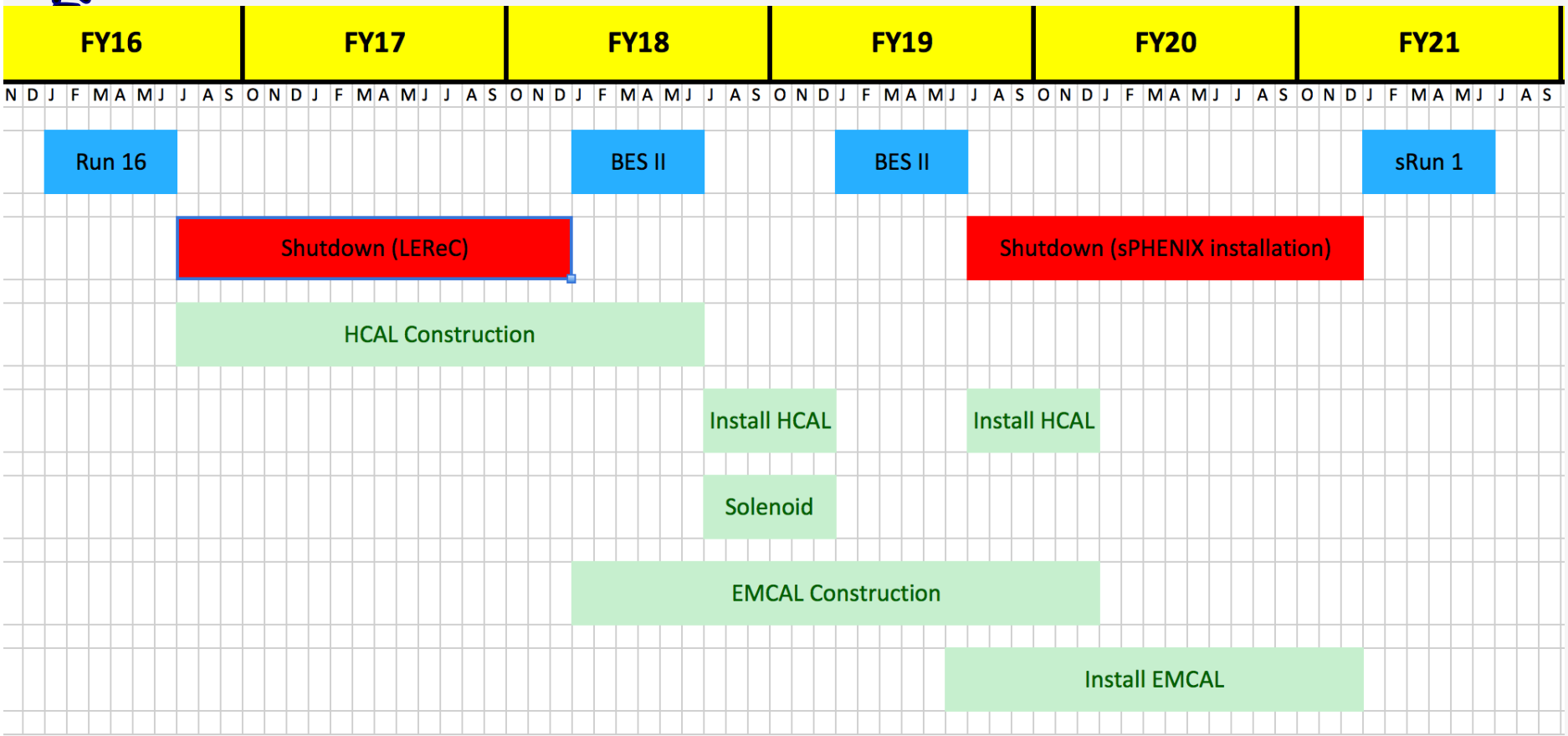
sPHENIX schedule



Desirable to have whole HCal installed prior to Run-19

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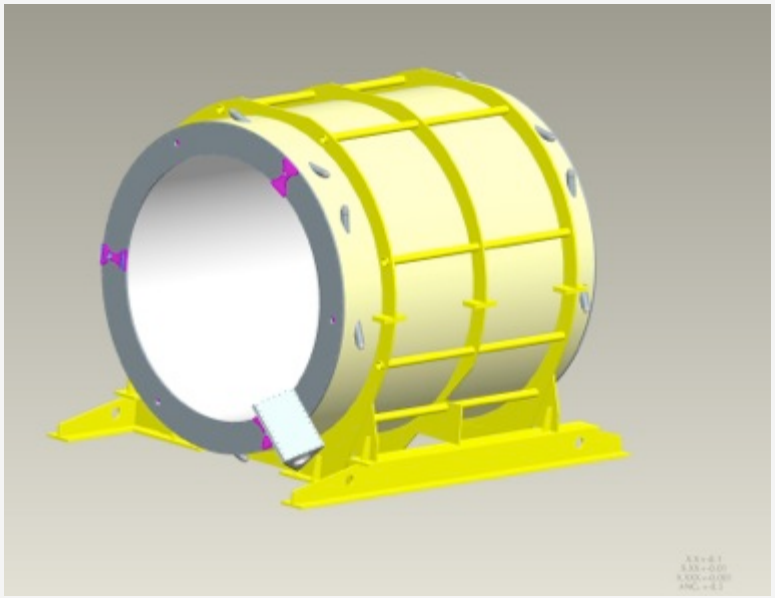
Magnet (BABAR) (Magnet Div)

TECHNICAL SUPPORT 2014

• Acquire rights	Done
• Evaluate Transport	Done
• Design Transport fixtures	
• Fabricate Transport Fixtures	6/15/14
• Evaluate BNL test facility requirements	8/1/14
• Prepare test facility	9/1/14
• Install Transport fixtures	
• Transport to BNL	9/15/14
• Install in test facility	10/1/14
• Design tests/test equipment	10/1/14
• Fabricate/procure test equipment	1/1/15
• Run tests	6/1/15
• Design Magnet modifications	12/1/14
• Fabricate magnet modifications	6/1/15
• Install magnet modifications	8/1/15
• Evaluate final installation	9/1/15
• Design installation support equipment	12/31/2015
• Fabricate/procure support equipment	7/1/2018
• Transport to IR	6/10/2019
• Install	8/30/2019
• Test	10/25/2019
• Commission	11/22/2019



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TECHNICAL SUPPORT 2014

Meeting yesterday with Mag Div. to finalize magnet transportation:

- Magnet move
  - Thermal shield stabilizers are in the shops,
  - Completion expected by July 1.
  - 2 quotes for shipping by truck of the solenoid and the valve box ~ $40k.
  - Other equipment to ship , conventional widths, air-ride is desirable
  - Send someone form Mag div to oversee/help with stabilizer install
  - Transport should take ~ 2 weeks, want it completed this fiscal year
  - 1008B suggested for storage of power supply & dump resistor; floor plans to be comnsulted

- Magnet testing
  - Reasonable location in 912 suggested, but CAD (Dave phillips) model magnet with floor plan and propose appropriately;
  - Probably need to be there for testing for at least one year.
  - Could be tested with the existing stack.
    Only very low power testing of the magnet in 912 is being considered. a spare RHIC quadrupole supply would be adequate for testing.
  - Roberto and Jerry will determine whether the proposed landing spot will be amenable to cryo.

- Stack Modification
  - Envelope drawing (rev J, "Innie") showed which shows the detector envelope.
  - Want to know the relative cost (money, difficulty, risk) of using the chimney as-is vs. modifying it to stay out of the acceptance.
  - Paul will begin looking into what would be needed;
  - Roberto and Jerry have thought about it and will work with Paul.

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TECHNICAL SUPPORT 2014

sPHENIX Engineering:

Major Subsystems/Subtopics:

- Magnet (BABAR) (Magnet Div) start 2/1/14 - 12/31/2018
- Hadronic Calorimeter (HCAL) (PHENIX) start 2/1/14 - 12/31/2020
- EM Calorimeter EMCal (PHENIX) start 2/1/14 - 12/31/2020
- VTX (RIKEN) start 2/1/14 - 12/31/2020
- DIRC (?) start ? - 12/31/2020
- VTX additional layers (RIKEN) start ? - 12/31/2020
- Carriage Support structure (PHENIX) start 2/1/14 - 12/31/2020
- Readout Electronics (PHENIX) start 2/1/14 - 12/31/2020
- Infrastructure (PHENIX ++)
  - Electrical Power Services (PHENIX) start ? - 12/31/2017
  - Instrumentation Support (Signal trays & Racks) (PHENIX) start ? - 12/31/2020
  - Cryo Services (CAD) start 2/1/14 – 8/1/2018
  - Cooling water (CAD) start ? - 12/31/2017
  - Safety Systems (PHENIX) start ? - 12/31/2020
  - Work Platforms and Access/Egress Structures (CAD) start ? - 12/31/2017
  - HVAC (CAD) start ? - 12/31/2017
  - PHENIX Decommissioning (CAD, PHENIX) start ? - 6/30/2017
- System Integration (PHENIX) start 2/1/14 - 12/31/2020
- Testing (PHENIX) start 2/1/14 - 12/31/2020

TECHNICAL SUPPORT 2014

Infrastructure: SULI Student this summer task plan:

The efforts to be undertaken by the SULI summer student working on this project include planning for the logistics involved, analysis and design documentation of existing PHENIX infrastucture and initial layouts for sPHENIX. Student will work closely with PHENIX and RHIC engineers and designers to achieve these goals.

PHENIX Decommissioning: SULI Student this summer task plan:

The efforts to be undertaken by the SULI summer student working on this project include organizing and planning work procedures for decommissioning the various PHENIX detectors and related support subsystems .

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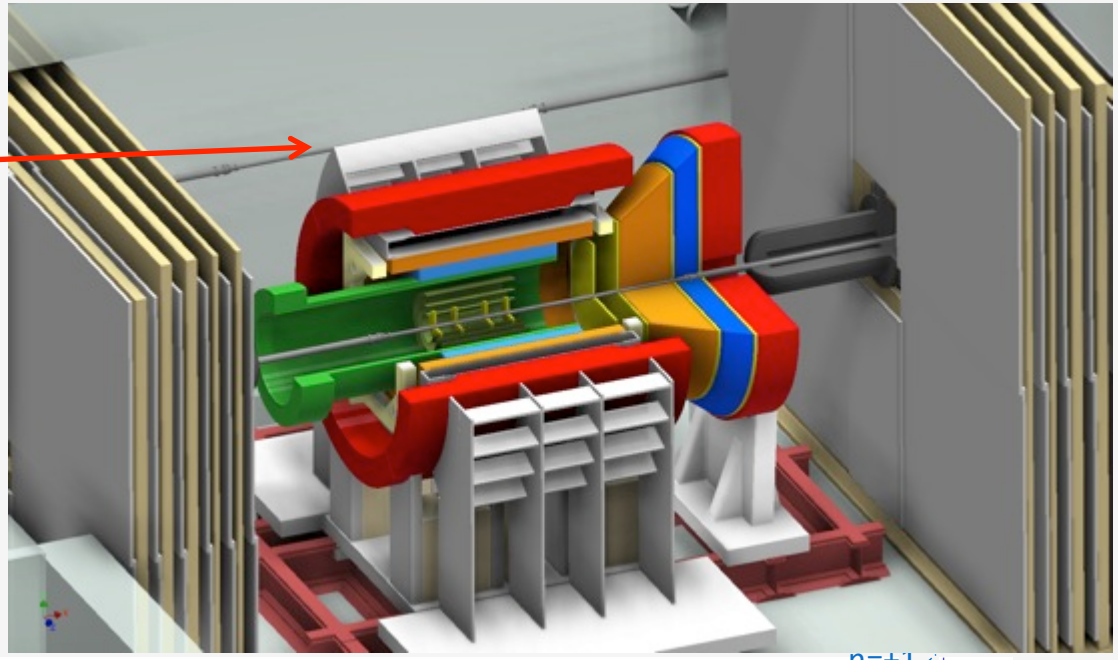
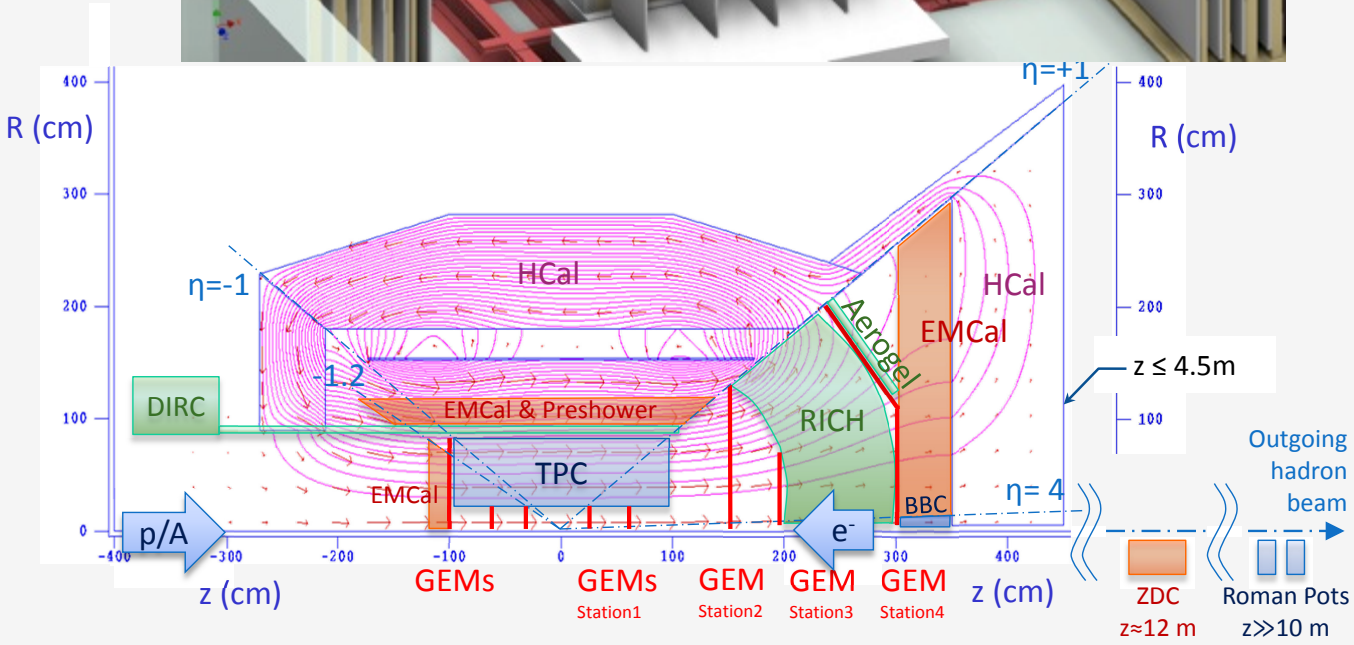
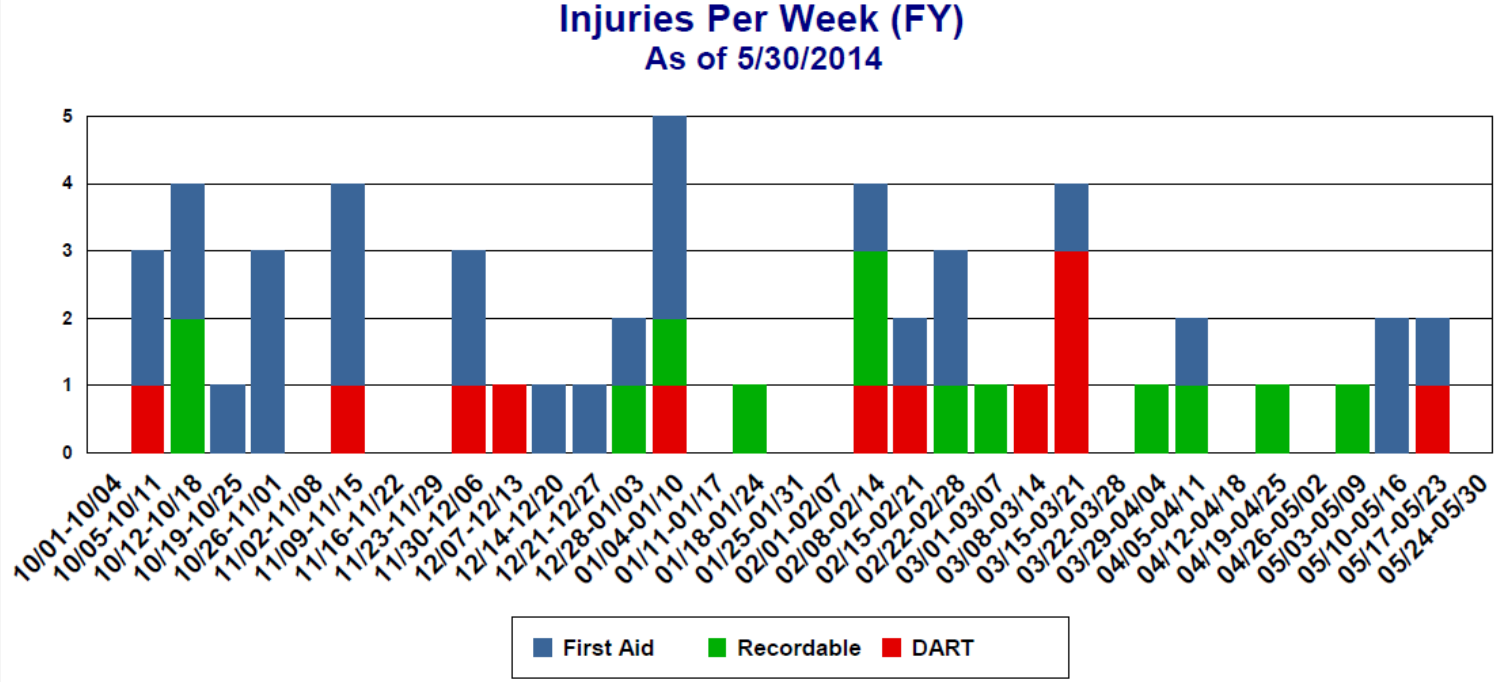
TECHNICAL SUPPORT 2014

2ft high x 1 ft wide clearance needed for e-ring components



ePHENIX





Injury Status:

FY14 YTD: DART – 12, TRC – 25, First Aid – 28
FY13: DART – 16, TRC – 38, First Aid – 53
FY12: DART – 19, TRC – 36, First Aid – 69

FY13 Injury Listing: https://intranet.bnl.gov/esh/shsd/seg/OccInj/BNLInjuries.aspx

Recent Injuries		
5/22/14	DART	An employee strained their right arm while working using both hands over their head to install new equipment. At the OMC, first aid was given. UPDATE: The employee began losing time on 5/23, making this a DART case.

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TECHNICAL SUPPORT 2014

Recent Events		
5/23/14	Non-Reportable	Two workers were on a scissor lift installing drywall in Building 744. The man-lift was in an elevated position when the workers noticed a hissing noise and water mist spraying them. They immediately lowered the man-lift and the water spray increased. The damaged section of pipe came down with the man-lift. It was 1.5-inch-diameter threaded sprinkler piping. There were no injuries. Fire/Rescue responded automatically to the water flow alarm. Plumbers were called and immediately responded to shut off the water, thereby minimizing the damage. Damage was limited to some wet drywall and insulation, which will be replaced. (Event Link)
5/22/14	SC-BNL	An HVAC Mechanical Technician responded to a report of warm temperatures in Building 197. After taking voltage measurements at the HVAC disconnect switch (wearing PPE as identified in their Testing, Trouble Shooting, Voltage Measurement procedure), the worker shut the switch and observed sparking and heard arcing sounds from the electrical raceway/disconnect box. The worker immediately made the system safe by properly de-energizing and LOTOing it and contacted their supervisor. Evaluation determined the motor had apparently seized and shorted. Inspection by electricians identified a lack of electrical grounding in the circuit from the panel to the disconnect switch and HVAC unit (building dates to the 1940's), and evidence of arcing sufficient to damage rigid electrical coupling connection. The Laboratory Chief Electrical Inspector was informed and has assisted with further evaluation of the grounding associated with the electrical power supplied to the building. Actions to evaluate other Building 197 circuits, improve the grounding to the HVAC unit circuit and other electrical panels are currently being developed. In addition, an evaluation of the grounding effectiveness associated with other 1940's era buildings is under development. An investigation and corrective action development is ongoing. (Event Link)

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TECHNICAL SUPPORT 2014

Where To Find PHENIX Engineering Info

Run 14 Continues!
Less than
1-1/2 months to go !

70th anniversary of D-Day tomorrow

Belmont Stakes Race Saturday:

Will California Chrome become the first horse in 35 years to win the triple crown?

My Predictions:

1. Wicked Strong
2. California Chrome
3. Ride On Curlin

The "Belmont Breeze"
Official Drink of the Belmont Stakes:

Ingredients:

1 1/2 ounces bourbon whiskey
1/2 ounce Dry Sack Medium Dry Sherry
1/2 ounce fresh lemon juice
1/2 ounce simple syrup
Splash of orange juice
Splash of cranberry juice
5 mint leaves
1 mint sprig
1 orange zest

1. Shake all ingredients with ice
2. Strain into a chilled cocktail glass
3. Garnish with fresh mint sprig & orange peel (& optional strawberry)

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm